

# **KIEN1005S**

## **Industrial Ethernet Switch**

## **Hardware Installation Manual**



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**KIEN1005S Industrial Ethernet Switch  
Hardware Installation Manual**

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## Notice for Safety Operation

The product performs reliably as long as it is used according to the guidance. Artificial damage or destruction of the device should be avoided. Before using the device, read this notice carefully for personal and equipment safety. Please keep the manual for further reference. Kyland is not liable to any personal or equipment damage caused by violation of this notice.

- Do not place the device near water sources or damp areas. Keep the ambient relative humidity within the range from 5% to 95% (non-condensing).
- Do not place the device in an environment with high magnetic field, strong shock, or high temperature. Keep the working and storage temperatures within the allowed range.
- Install and place the device securely and firmly.
- Please keep the device clean; if necessary, wipe it with a soft cotton cloth.
- Do not place any irrelevant materials on the device or cables. Ensure adequate heat dissipation and tidy cable layout without knots.
- Wear antistatic gloves or take other protective measures when operating the device.
- Avoid any exposed metal wires because they may be oxidized or electrified.
- Install the device in accordance with related national and local regulations.
- Before power-on, make sure the power supply is within the allowed range of the device. High voltage may damage the device.
- Power connectors and other connectors should be firmly interconnected.
- Do not plug in or out the power supply with wet hands. When the device is powered on, do not touch the device or any parts with wet hands.
- Before operating a device connected to a power cable, remove all jewelry (such as rings, bracelets, watches, and necklaces) or any other metal objects, because they may cause electric shock or burns.
- Do not operate the device or connect or disconnect cables during an electrical storm.
- Use compatible connectors and cables. If you are not sure, contact our sales or technical support personnel for confirmation.
- Do not disassemble the device by yourself. When an anomaly occurs, contact our sales or technical support personnel.
- If any part is lost, contact our sales or technical support personnel to purchase the substitute. Do not purchase parts from other channels.
- Dispose of the device in accordance with relevant national provisions, preventing environmental pollution.

In the following cases, please immediately shut down your power supply and contact your Kyland representative:

- Water gets into the equipment.
- Equipment damage or shell damage.
- Equipment operation or performance has abnormally changed.

The equipment emits odor, smoke or abnormal noise.

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## 1. Packing List

KIEN1005S Industrial Ethernet Switch	1
Hardware Installation Manual	1
Certificate of Quality (including Warranty Card)	1

**Note:** After unpacking, please check the accessories and the appearance of the equipment. If anything is missing or damaged, please contact us.

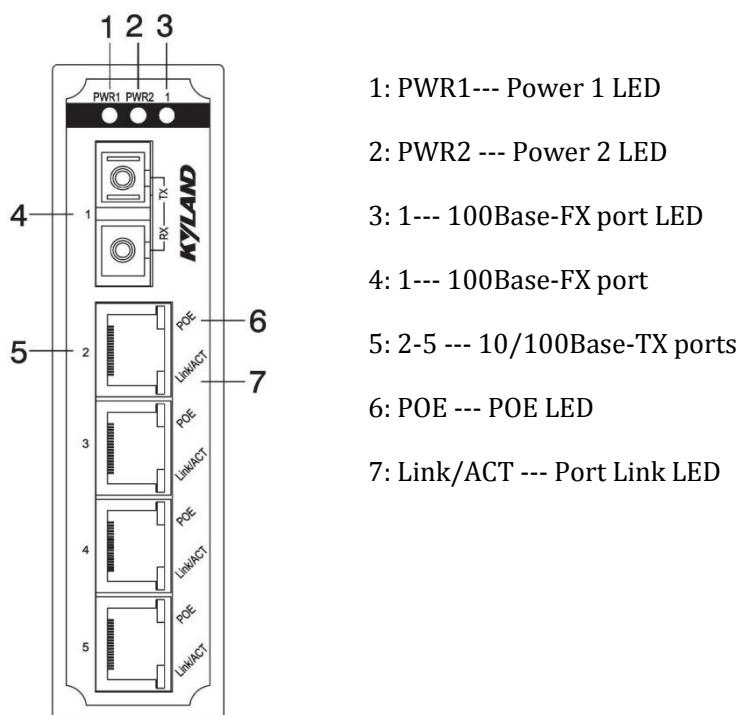
## 2. Product Overview

The Kyland KIEN1005S is a series of the green, low power consumption, DIN-Rail, POE industrial Ethernet switches that can be applied extensively in security, highway monitoring, rail transit, railway disaster prevention, coal mining, industrial production and control and many other industrial systems.

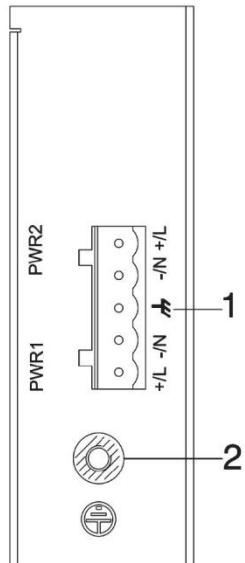
The KIEN1005S industrial Ethernet switch supports DIN-Rail and wall mounting. It provides one 100M fiber/copper optional port and four 10/100Base-TX 802.3af compliant POE ports. The output power per POE is 15.4W.

## 3. Structure and Interface

### ◆ Front Panel



◆ **Top Panel**

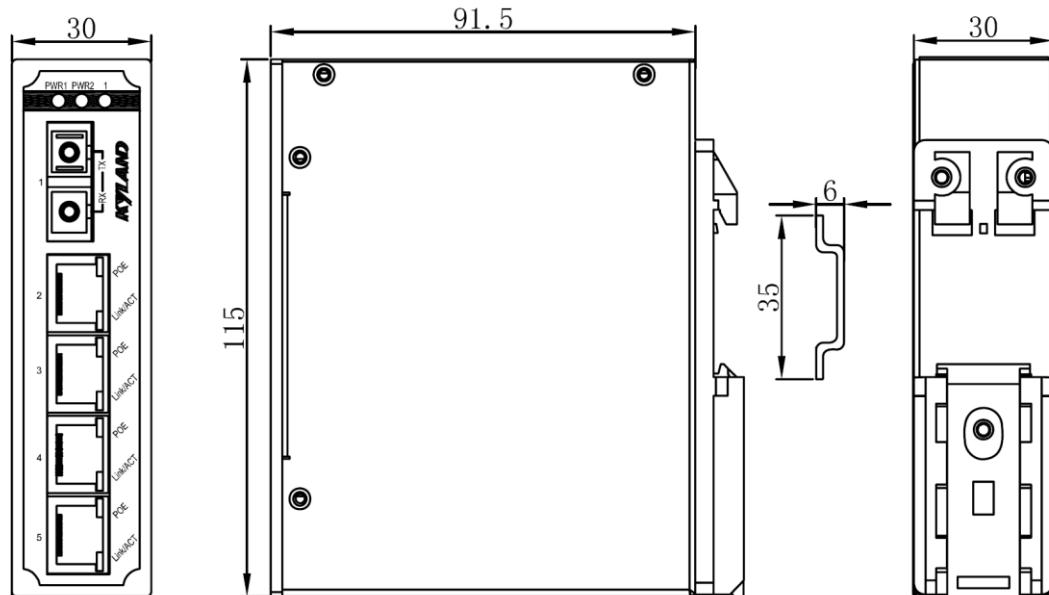


1: Terminal block for power input

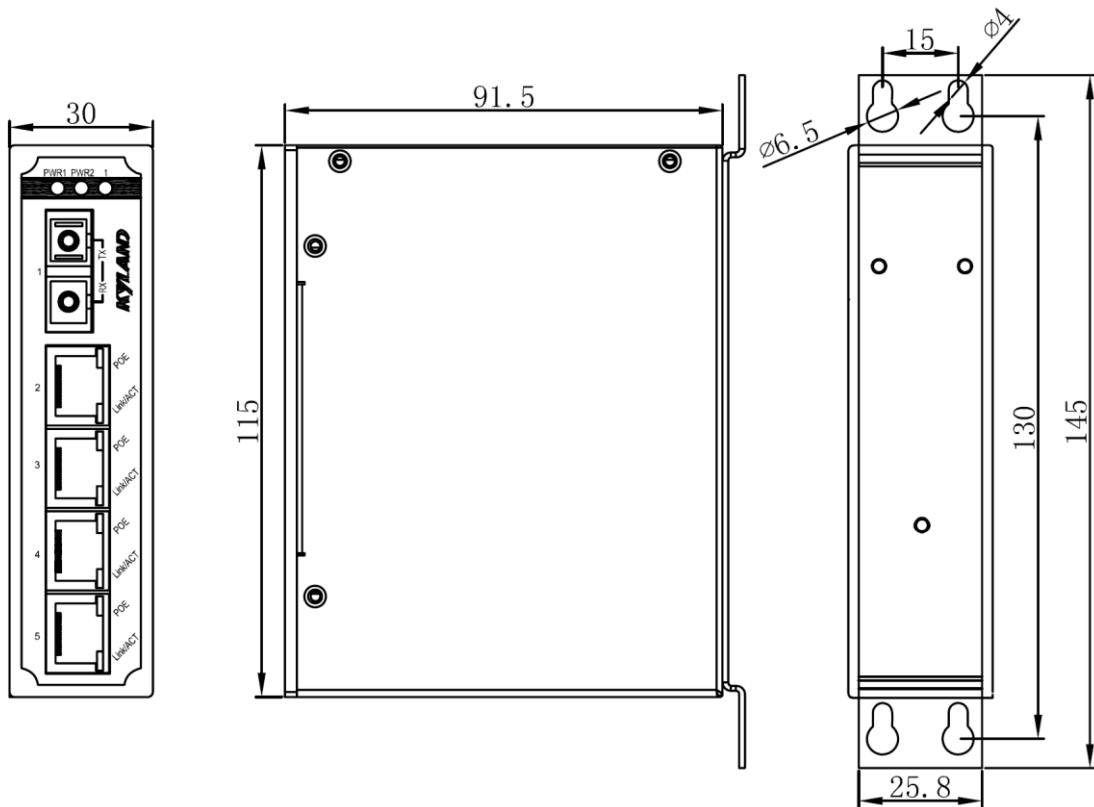
2: Screw hole for grounding

**4. Mounting**

◆ **Dimension Drawing for DIN-Rail Mounting (Unit: mm)**



◆ **Dimension Drawing for Wall Mounting (Unit: mm)**



**Note:** The switch housing is a part of the heat dissipation system, which becomes hot during operation. Please be careful when handling the device during operation.

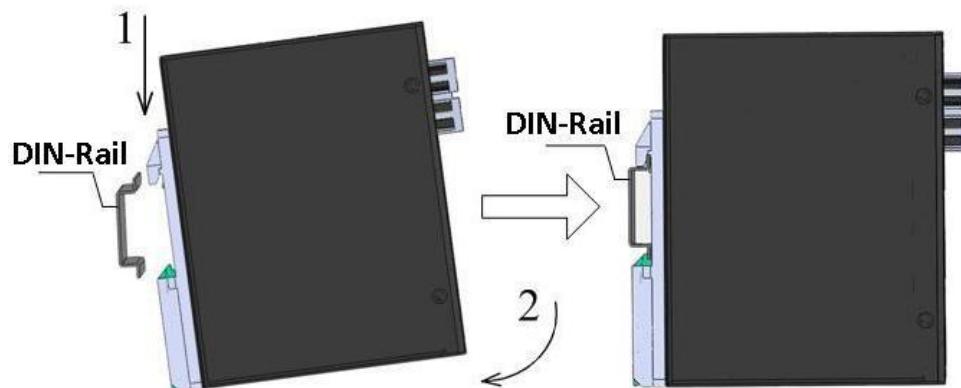
### ◆ Mounting Steps

- **KIEN1005S DIN-Rail Mounting**

The specific steps are as follows:

Step 1: Select the mounting position for KIEN1005S and ensure that there is enough space.

Step 2: Insert the top of the DIN-Rail into the spring-supported slot of the DIN-Rail connecting seat in the rear panel of KIEN1005S as seen below; move the device in the direction of arrow 2 to put the whole Din-Rail into the seat; check whether KIEN1005S is firmly mounted on the DIN-Rail, as shown below.

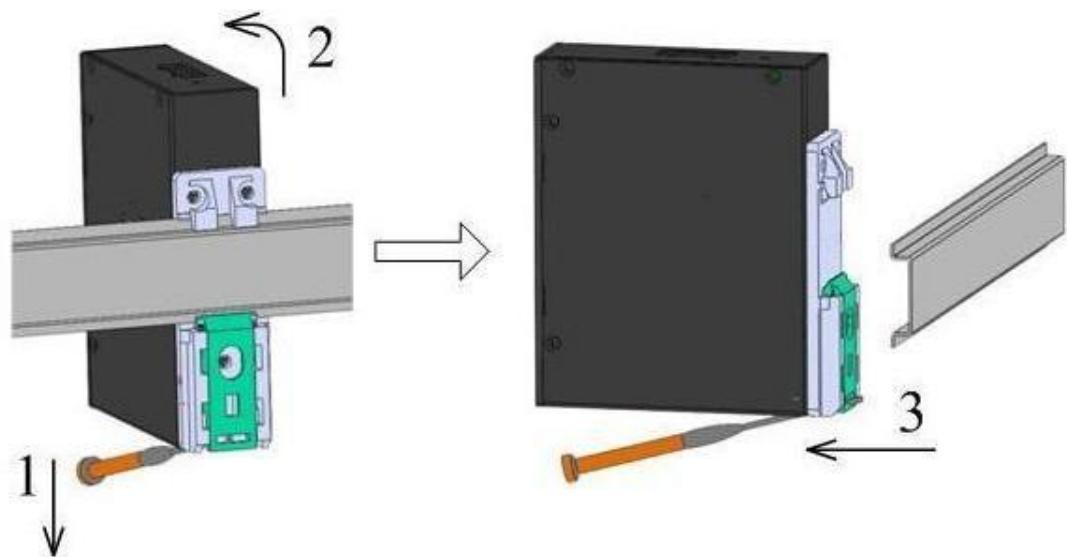


- **Remove KIEN1005S from DIN-Rail**

The specific steps are as follows:

Step 1: Plug the screwdriver into the hole at the bottom of spring locking plate; press the plate down to loosen the connection of DIN-Rail and switch, as shown in arrow 1

Step 2: Take up KIEN1005S in the direction of arrow 2; meanwhile remove the device from the DIN-Rail along the direction of arrow 3.



- **KIEN1005S Wall Mounting**

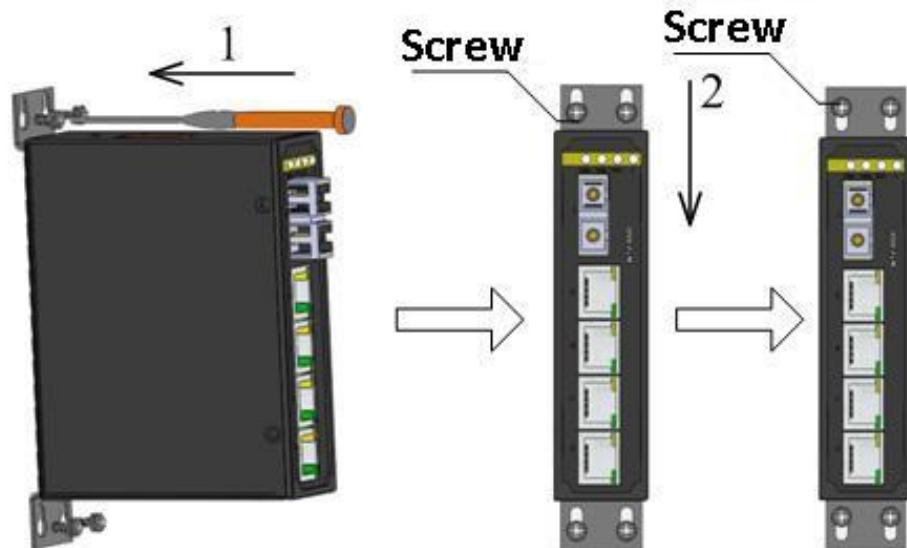
The specific steps are as follows:

Step 1: Select the mounting position for KIEN1005S on the wall or in cabinet; ensure that there is enough space for the switch.

Step 2: Drill 4 holes on the selected position according to the wall mounting dimension drawings; use a cross-screwdriver to screw 4 cross-slot screws into holes. Don't tighten

up the screws completely; leave about 5mm of space between.

Step 3: Aim 4 mounting holes on KIEN1005S mounting plate at 4 fixed screws; pass the screws through 4 holes with the diameter of 6.5mm ( $\Phi 6.5$ ); then slide down KIEN1005 as seen below; finally screw 4 screws tightly. Now the KIEN1005 should be firmly fixed to the wall or cabinet.

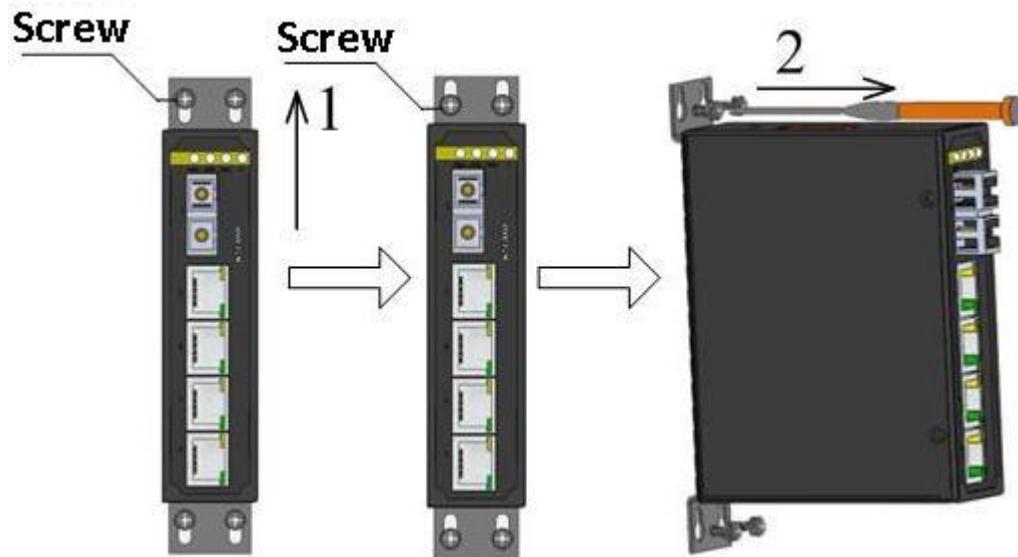


#### ● Remove KIEN1005S from wall or cabinet

The specific steps are as follows:

Step 1: Use a screwdriver to loosen 4 screws; move the device up to let screws into 4 holes with the diameter of 6.5mm ( $\Phi 6.5$ ).

Step 2: Unscrew the screws from wall or cabinet; remove the device from wall or cabinet



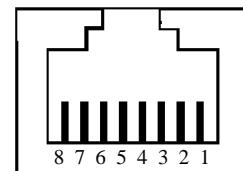
## 5. Cable Connection

### ◆ 10/100Base-TX Port (RJ45 Port)

- **RJ45 port cable types and requirements**

10/100Base-TX Ethernet RJ45 port can be connected to terminal equipment with a straight-through cable, and connected to network devices with a cross-over cable.

- **RJ45 connector and pin number:**

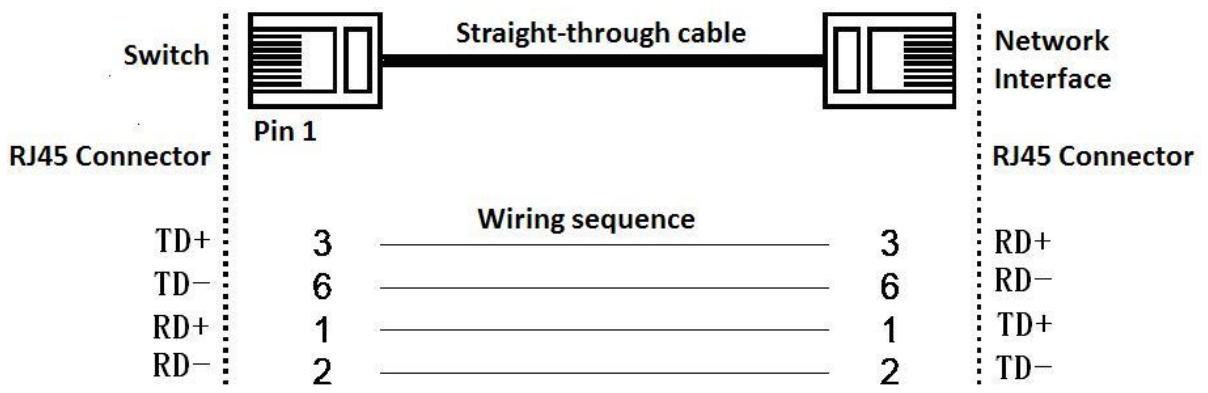


- **Pin distribution of 10/100Base-TX**

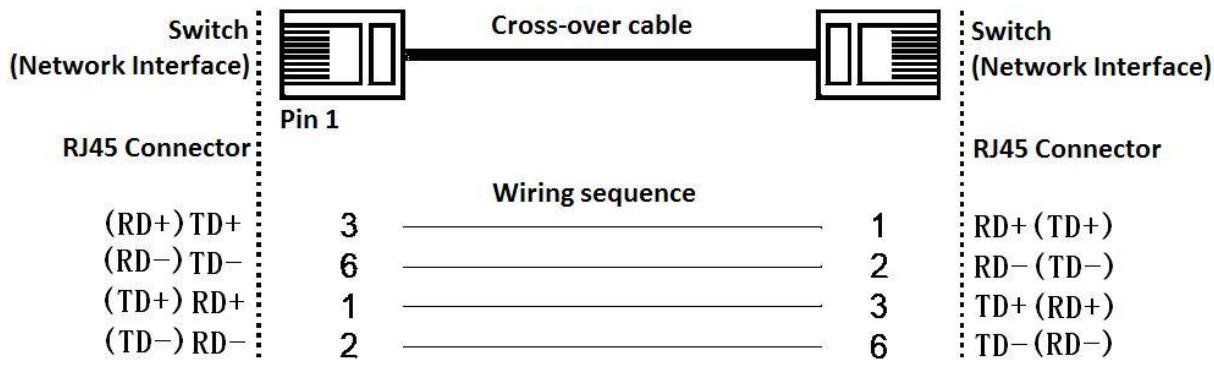
Pin	MDI-X signal name	MDI signal name
1	Receiving data+ (RD+)	Output data+ (TD+)
2	Receiving data- (RD-)	Output data- (TD-)
3	Output data+ (TD+)	Receiving data+ (RD+)
6	Output data- (TD-)	Receiving data- (RD-)
4, 5, 7, 8	Unused	Unused

**Note:** "+" "-" means cable polarity.

- **100M straight-through cable wiring**



- **100M cross-over cable wiring**



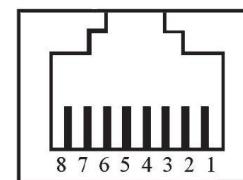
◆ **POE Port (RJ45 port)**

- **POE power supply mode**

POE power supply can be achieved in two ways: one is power is supplied to PD (Powered Device) over data wires and secondly the power is supplied to PD over unused wires.

The specific power supply mode of PSE (Power sourcing equipment) is automatically matched according to the power-receiving mode of PD.

- **RJ45 connector of POE port and pin number:**



- **Pin distribution of 10/100Base-TX**

Pin	MDI-X signal name	MDI signal name	POE power supply
1	Receiving data+ (RD+)	Output data+ (TD+)	V+
2	Receiving data- (RD-)	Output data- (TD-)	V+
3	Output data+ (TD+)	Receiving data+ (RD+)	V-

6	Output data- (TD-)	Receiving data- (RD-)	V-
4, 5, 7, 8	Unused	Unused	Unused
<b>Note:</b> "+" "-" means cable polarity.			

- Pin distribution of POE power supply over unused wires

Pin	MDI-X signal name	MDI signal name	POE power supply
1	Receiving data+ (RD+)	Output data+ (TD+)	Unused
2	Receiving data- (RD-)	Output data- (TD-)	Unused
3	Output data+ (TD+)	Receiving data+ (RD+)	Unused
6	Output data- (TD-)	Receiving data- (RD-)	Unused
4	Unused	Unused	V+
5	Unused	Unused	V+
7	Unused	Unused	V-
8	Unused	Unused	V-
<b>Note:</b> "+" "-" means cable polarity.			

◆ 100Base-FX Fiber Ports

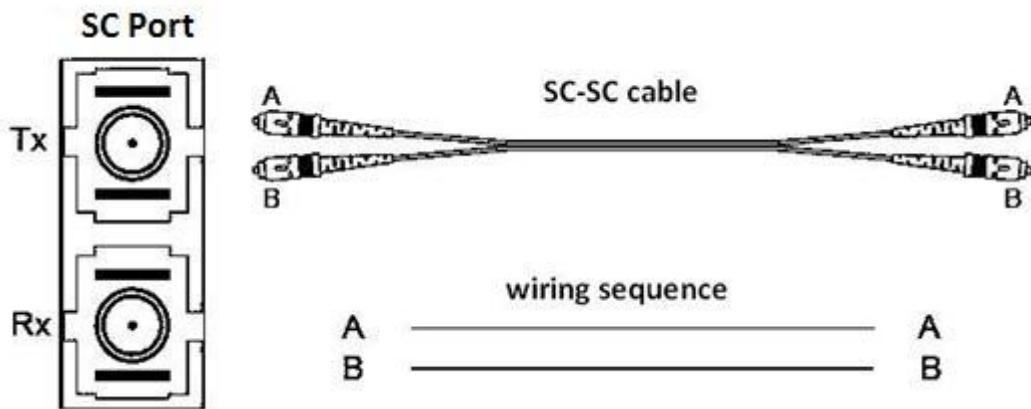
- Fiber port parameters

**100M FX Parameter Table**

Property		FX (FC/SC/ST)				
Type		Multimode (M)	Single mode (S)	Single mode (S)	Single mode (S)	Single mode (S)
Center wavelength (nm)		1310	1310	1310	1550	1550
Transmission distance (Km)		2	5	40	60	60
Application range (Km)		0-2	0-5	0-40	6-60	4-60
Transmitting optical	Minimum (dBm)	-19		-12	-8	-8

power	Max (dBm)	-11	-4	0	-2	0
Receiving sensitivity (dBm)		-31	-34	-34	-34	-34
Overload optical power (dBm)		-3	-3	-3	-3	-3

- **100M fiber port wiring (Take SC port as example; ST/FC wiring method is the same with SC)**

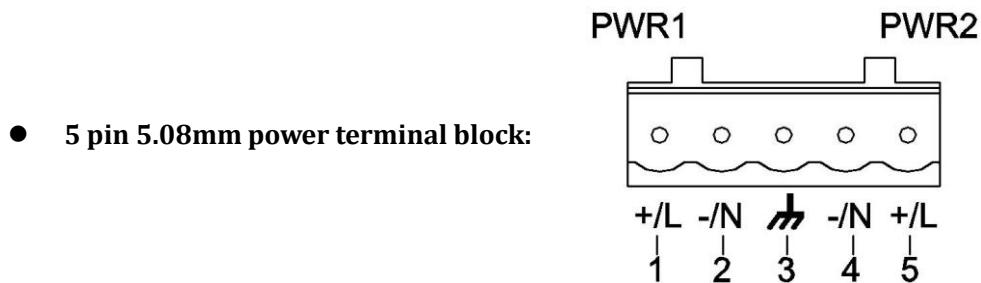


**Note:** A laser is used to transmit signals in fiber cables. The laser meets the requirements of level 1 laser products. Routine operation is not harmful to your eyes, but do not look directly at the fiber port and fiber connector when the switch is powered on.

#### ◆ Power

According to the power input requirements, use a 5.08mm-spacing terminal block to connect power cable.

**Note:** The cross section area of power cable is required to be greater than 0.75mm<sup>2</sup> and less than 2.5mm<sup>2</sup>. The grounding resistance requirement: <5Ω.

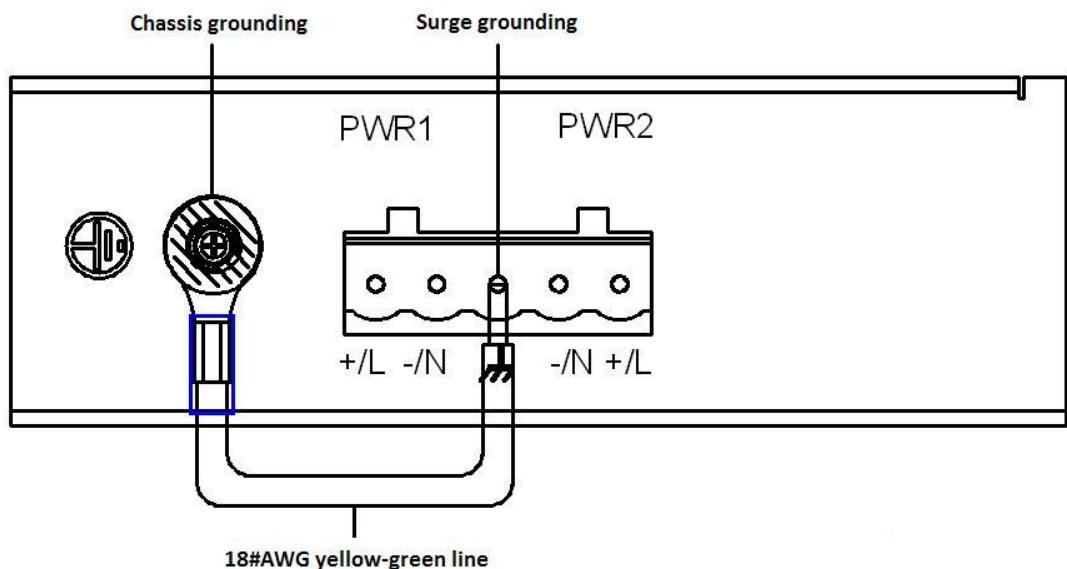


### Contact definition

Contact number	DC wiring definition	AC wiring definition
1	PWR1: +	PWR1: L
2	PWR1: -	PWR1: N
3	Protection Ground	Protection Ground
4	PWR2: -	PWR2: N
5	PWR2: +	PWR2: L

### ◆ Grounding

- Chassis grounding and power terminal grounding



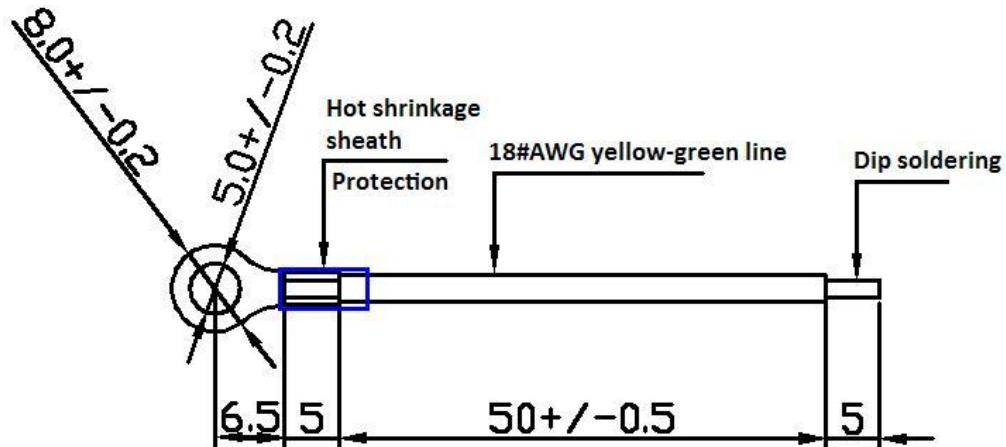
There is a grounding screw on the top panel of the KIEN1005S, which is for chassis

grounding. One end of the chassis grounding cable is connected with the grounding screw and the other end of the cable is reliably earthed. (The cross section area of chassis grounding cable should be more than  $2.5\text{mm}^2$ . The grounding resistance requirement:  $<5\Omega$ )

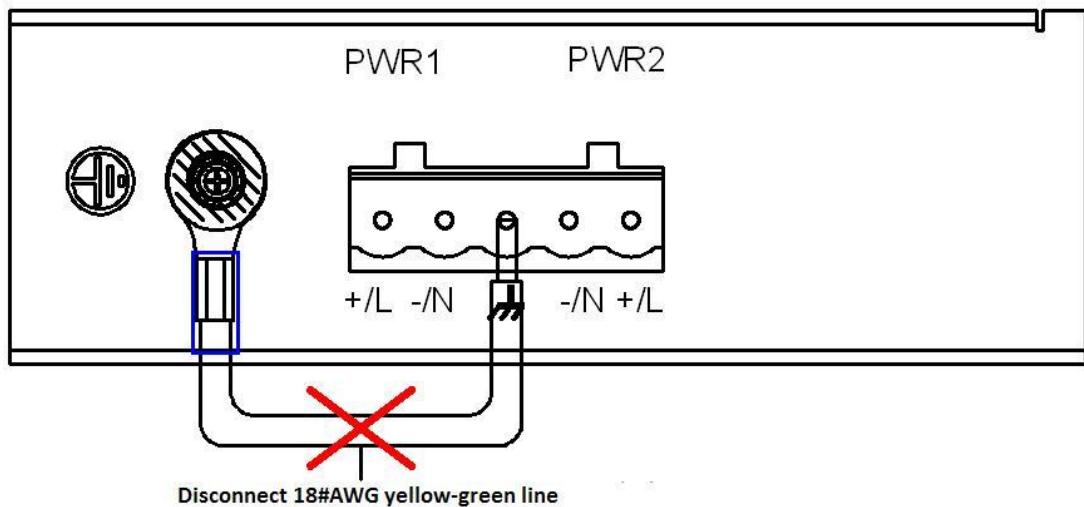
5.08mm power terminal grounding is called surge grounding.

It is required to connect the chassis grounding part with the surge grounding part with 18#AWG yellow-green line as seen below

- **18#AWG yellow-green line (Unit: mm)**



**Note:** If the KEIN1005S needs to do an insulated withstand voltage test, please disconnect the 18#AWG line to disable surge protection circuit, which will cause the failure of this experiment.



## 6. LED Indicators

KIEN1005S LED indicators

LED	State	Description
<b>Power LEDs</b>		
PWR1	ON	Power 1 connects and operates normally.
	OFF	Power 1 disconnects or operates abnormally.
PWR2	ON	Power 2 connects and operates normally.
	OFF	Power2 disconnects or operates abnormally.
<b>100M fiber port LED</b>		
LINK/ACT	ON	Effective network connection in the port
	Blinking	Network activities in the port
	OFF	No effective network connection in the port
<b>Ethernet RJ45 port LEDs</b>		
POE (Yellow)	ON	POE port supplies power normally
	Blinking	POE port supplies power abnormally
	OFF	POE port does not supply power
Link/Act (Green)	ON	Effective network connection in the port
	Blinking	Network activities in the port
	OFF	No effective network connection in the port

## 7. Product Models

The specific configuration models of KIEN1005S are shown in below table:

KIEN1005S Configuration Table

Models	KIEN005S-Ports-Connector-PS1-PS2
Code definition	Code option
Ports: S/M, T, P	1S4P: one 100Base-FX port, single mode; four 10/100Base-T(X) RJ45 POE ports 1M4P: one 100Base-FX port, multiple mode; four 10/100Base-T(X) RJ45 POE ports 1T4P: one 10/100Base-T(X) RJ45 port; four 10/100Base-T(X) RJ45 POE ports
Connector: parameters for S/M	<b>Ports with M:</b> SC05=SC connector, 1310nm, 5km ST05=ST connector, 1310nm, 5km

	<p>FC05=FC connector, 1310nm, 5km</p> <p><b>Ports with S:</b></p> <p>SC40=SC connector, 1310nm, 40km</p> <p>ST40=ST connector, 1310nm, 40km</p> <p>FC40=FC connector, 1310nm, 40km</p> <p>SC60=SC connector, 1310nm, 60km</p> <p>SC80=SC connector, 1550nm, 80km</p> <p><b>Ports without S or M:</b></p> <p>N/A</p>
PS1-PS2: power input	L10-L10 (48DC, redundant power input)

## 8. Basic Features and Specifications

### ◆ Power Requirements

Rated Voltage Range: L10(48DC): 48VDC

Maximum Voltage Range: L10(48DC): 45~57VDC

Power terminal: 5-pin 5.08mm-spacing plug-in terminal block

Power consumption: <3W (no PD), <70W (full load PD)

### ◆ Physical Characteristics

Installation: DIN-Rail or wall mounting

Dimensions (W×H×D): 30mm×115mm×91.5 mm

Weight: 0.5Kg

### ◆ Environment Limits

Operating Temperature: -40 °C to 85 °C (-40 to 185 °F)

Storage Temperature: -40 °C to 85 °C (-40 to 185 °F)

Ambient Relative Humidity: 5% to 95% (non-condensing)

- ◆ **MTBF:** 338,100 h
- ◆ **Warranty:** 5 years

For more information about KYLAND products, please visit our website:

<http://www.kyland.com/>